

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A sprinkler head for a fire extinguishing system comprising:

a sprinkler body having an orifice, said orifice defining an inlet, and an outlet;

a body extension attached to said sprinkler body and having an extending section extending beyond said outlet of said sprinkler body;

5 a retaining member positioned beyond said outlet and within said body extension, said retaining member mounted to be movable relative to said body extension and said sprinkler body;

a deflector movable between an activated position and a storage position within said body extension and having at least one support arm projecting therefrom, said retaining member coupled to said at least one support arm at a fixed distance from said retaining member, said support arm movably disposed within said body extension, wherein said deflector and said retaining member are positioned within said body extension when in said storage position;

10 a sealing assembly configured to sealingly engage said outlet of said sprinkler body, said sealing assembly movable from a closed position wherein said sprinkler head is inactive to an open position wherein said sprinkler head is activated; and

15 a trigger assembly carried by said body extension and operably connected with said sealing assembly and said deflector.

2. The sprinkler head of claim 1, wherein said deflector and said at least one support arm are monolithic.

3. The sprinkler head of claim 1, wherein said retaining member is captured by said extending section of said body extension when said sprinkler head is activated.

10 4. The sprinkler head of claim 1, wherein said extending section of said body extension is formed with an inwardly extending member, said inwardly extending member halting movement of said retaining member when said sprinkler head is activated.

5. The sprinkler head of claim 4, wherein said inwardly extending member is an annular rim.

6. The sprinkler head of claim 1, wherein said at least one support arm has a generally larger shaped middle section.

7. The sprinkler head of claim 1, wherein said at least one support arm has an upper section, and wherein said retaining member is configured to receive said upper section of said at least one support arm.

8. The sprinkler head of claim 1, wherein said retaining member is an annular ring having an outer periphery, said outer periphery having at least one notch formed therein, wherein said at least one support member has an upper section dimensioned for receipt by said at least one notch.

9. The sprinkler head of claim 8, wherein said upper section is formed with a pair of cut-out sections which collectively define a neck, wherein said at least one notch is dimensioned to receive said neck.

10. The sprinkler head of claim 1, wherein said sprinkler body has a bottom formed with an annular shoulder and said sealing assembly further comprises an annular spring positioned within said annular shoulder and a rod formed with a section extending through said annular spring, said rod configured to place said annular spring in compression when said sprinkler head is inactive.

11. The sprinkler head of claim 10, wherein said rod is supported by said deflector when said sprinkler head is in the activated state.

12. The sprinkler head of claim 1, wherein said body extension has a generally cylindrical shape.

13. The sprinkler head of claim 1, wherein said body extension is formed with at least one air exhaust port.

14. The sprinkler head of claim 8, wherein said at least one support member is three support members, and wherein said at least one notch is three notches.

15. A sprinkler head for a fire extinguishing system comprising:

a sprinkler body having an orifice, said orifice having an inlet, an outlet, and a bottom surface;

a body extension attached to said sprinkler body and having an extending section extending beyond said outlet;

a retaining member slidably positioned beyond said outlet and within said body extension;

a deflector positioned below said retaining member and mounted to said retaining member by at least two support members projecting from said deflector toward said retaining member, wherein said deflector and said at least two support members are monolithically formed;

a sealing assembly configured to sealingly engage said outlet of said sprinkler body, said sealing assembly movable from a closed position wherein said sprinkler head is inactive to an open position wherein said sprinkler head is activated; and

a trigger assembly carried by said body extension and operably connected with said sealing assembly.

16. The sprinkler head of claim 15, wherein said body extension is configured to arrest the movement of said retaining member when said sprinkler head is activated.

17. The sprinkler head of claim 15, wherein said extending section is formed with and inwardly extending member, said inwardly extending member arresting the movement of said retaining member when said sprinkler head is activated.

18. The sprinkler head of claim 15, wherein said at least one support member has a generally larger shaped middle section.

19. The sprinkler head of claim 15, wherein said retaining member is an annular ring having an outer periphery, said outer periphery having a pair of notches formed therein,

wherein said at least two support members each have an upper section formed with a pair of cutout sections which define a neck, wherein each notch of said pair of notches is dimensioned to receive said neck.

20. The sprinkler head of claim 15, wherein said bottom surface of said sprinkler body is formed with an annular shoulder and said sealing assembly further comprises an annular spring positioned within said annular shoulder, and a rod having an annular flange, said annular flange placing said annular spring in compression when said sprinkler head is inactive.

21. The sprinkler head of claim 19, wherein said rod is slidably positioned through said deflector.

22. The sprinkler head of claim 15, wherein each support member of said pair of support members is flared outwardly from said deflector to said retaining member.

23. A sprinkler head for a fire extinguishing system comprising:

a sprinkler body having an orifice, said orifice having an inlet, an outlet, and a bottom;

a body extension attached to said sprinkler body and having an extending section extending below said outlet of said sprinkler body and formed with an inwardly extending annular rim;

an annular retaining member positioned beyond said bottom and within said body extension, said annular retaining member having an outer periphery formed with at least one notch, wherein said outer periphery has a diameter greater than the diameter of said inwardly extending annular rim;

a deflector positioned within said body extension and having at least one support arm projecting therefrom, said at least one support arm having an upper region dimensioned for receipt by said at least one notch formed in said annular retaining member;

a sealing assembly configured to sealingly engage said outlet of said sprinkler body, said sealing assembly movable from a closed position wherein said sprinkler head is inactive to an open position wherein said sprinkler head is activated; and

a trigger assembly carried by said body extension and operably connected with said sealing assembly.

24. The sprinkler head of claim 23, wherein said deflector and said at least one support arm are monolithic.

25. The sprinkler head of claim 23, wherein said at least one support member has a generally larger shaped middle section.

26. The sprinkler head of claim 23, wherein said bottom of said sprinkler body is formed with an annular shoulder and said sealing assembly further comprises an annular spring positioned within said annular shoulder, and a rod formed with a section extending through said annular spring when said sprinkler head is inactive, said rod configured to place said annular spring in compression when said sprinkler head is inactive.

27. The sprinkler head of claim 23, wherein said body extension is formed with at least one air exhaust port.

28. The sprinkler head of claim 23, wherein said at least one support member is three support members.

29. A sprinkler head for a fire extinguishing system comprising:  
a sprinkler body having an orifice, said orifice having an inlet and an outlet;  
a slidable deflector support assembly at least partially positioned within said central orifice, said deflector support assembly including an annular ring and at least one attachment arm depending from said annular ring and attached to said deflector;  
a deflector carried by said deflector support assembly and positioned in proximity to said outlet;  
a trigger assembly carried by said sprinkler body;  
a sealing member positioned within said orifice; and  
a sealing assembly carried by said sprinkler body, said sealing assembly configured to urge said sealing member into sealing engagement with said inlet of said orifice.

30. The sprinkler head as recited in claim 29, wherein said annular ring and said at least one attachment arm are monolithic.

31. The sprinkler head of claim 29, wherein said annular ring has an outer diameter, and wherein said sprinkler head further comprises a retaining ring positioned within said orifice, said retaining ring having an inner diameter, and wherein said inner diameter of said retaining ring is less than said outer diameter of said annular ring.

32. The sprinkler of claim 31, wherein said annular ring has an inner surface and a pin projecting inwardly from said inner surface.

33. The sprinkler head of claim 32, wherein said pin extends in a generally horizontal direction.

34. The sprinkler head of claim 33, wherein said retaining ring has an inner surface and at least one slot formed in said inner surface, said at least one slot dimensioned receive said at least one attachment arm.

35. A sprinkler head for a fire extinguishing system comprising:  
a sprinkler body having an orifice, said orifice having an inlet and an outlet;  
a deflector support assembly at least partially positioned within said central orifice;  
a movable deflector supported by said deflector support assembly and positioned in

5 proximity to said outlet;

a sealing member positioned within said orifice, said sealing member releasibly sealing said orifice;

a movable compression member slidably movable through said movable deflector, said compression member releasibly securing said sealing member in a closed position; and

10 a trigger assembly carried by said sprinkler body, said trigger assembly configured to maintain said movable deflector and said movable compression member in a closed position, and when said trigger assembly is activated, permits said movable deflector to move away from said sprinkler body and said movable compression member to slide through said movable deflector.

36. The sprinkler head of claim 35, wherein said deflector support assembly further comprises:

an annular ring; and

at least one attachment arm depending from said annular ring and attached to said  
5 deflector.

37. The sprinkler head of claim 35, wherein said annular ring and said at least one attachment arm are monolithic.

38. The sprinkler head of claim 37, wherein said sealing member releasibly seals said inlet of said orifice.